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Acute Q fever in hospitalised patients in Central Tunisia: report of 21 cases

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INTRODUCTION

Q fever is caused by *Coxiella burnetii*, which is an obligate intracellular bacterium. In Tunisia, although the prevalence of Q fever among blood donors is high (26%) [1], this disease is rarely diagnosed. The aim of this study was to describe epidemiological and clinical features of acute Q fever in adults in central Tunisia.

PATIENTS AND METHODS

We included all patients diagnosed with acute Q fever, hospitalised in the Infectious Diseases Unit of a tertiary teaching hospital in Sousse, between January 2003 and December 2007.

Epidemiological, clinical and laboratory data were recorded from the medical charts. Eight patients had serology performed by immunofluorescence assay (IFA), in the Department of Microbiology in our hospital, to detect IgG antibodies against *C burnetii* (without specifying antigen phase), and 13 patients had serology performed in the Unité des Rickettsies, Faculté de Médecine de Marseille–France, to detect IgG and IgM antibodies (anti-phase I and phase II *C. burnetii*). Moreover, sera of all patients were tested for the presence of *Rickettsia conorii* antibodies. Diagnosis of acute Q fever was established in the presence of IgG titre >1/80 and IgM ≥1/50, or seroconversion or a four-fold or higher rise in IgG titres.

RESULTS

Epidemiological data

Twenty-one patients, 13 males and eight females, mean age = 40 years old (range, 16–65), were hospitalised for acute Q fever. Nineteen cases (90.5%) occurred between May and September. Rural origin and contact with pets were found in 11 patients (52.3%).

Clinical and laboratory data

Fifteen patients (71.5%) had hepatitis, five (23.5%) had pneumonia and three (14.5%) had a flu-like syndrome. Two patients had associated hepatitis and pneumonia. The most common symptoms were fever (100%), fatigue (76%) and chills (47.5%). Skin rash was present in five patients (23.5%) (Table 1). Meningitis was suspected in two cases and confirmed in one patient; lumbar puncture showed lymphocytic meningitis and normal glucose level in cerebrospinal fluid. The most common laboratory findings were: normal WBC count or leucopenia, cytolysis (15 cases = 71.5% each), and thrombopenia (12 cases = 57%); one patient had renal failure. Six patients had serological evidence of concomitant or previous infection with spotted fever group rickettsioses (SFGR).

Treatment and outcome

Sixteen patients (76.1%) were treated with antibiotics, 14 (87.5%) with doxycycline, for a mean duration of 14 days (range, 5–21). Apyrexia was obtained within a mean duration of 36 hours of antibiotic therapy (range, 24–72). The outcome was favourable in all the cases.

DISCUSSION

In 2004, 8% of the patients hospitalised in our department for acute fever of undetermined origin had acute Q fever [2]. However, it is usually misdiagnosed because of its clinical poly-

Table 1. Clinical data of patients with acute Q fever

Clinical features	Number of cases (%)
Fever	21 (100)
Fatigue/arthromyalgia	16 (76.1)
Chills	10 (47.5)
Headache	9 (42.8)
Sweats	7 (33.3)
Gastrointestinal symptoms	6 (28.5)
Cough/lung crepitations	3 (14.3)
Neck stiffness	2 (9.5)

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morphism and only tertiary teaching hospitals' laboratories can provide *C. burnetii* serology. In our series, hepatitis was the most common clinical pattern (71.5%), as was described in a French series [3]. However, pneumonia predominates in Spain [4]. This diversity of clinical presentations could be explained by either a difference in route of infection or variations in the strains of *C. burnetii*. In our series, concomittent or previous Q fever and SFGR was noted in six patients. This situation has been reported in five cases in the literature; it could be explained by dual infections or co-transmission of aetiological agents by tick bites [5].

CONCLUSION

In our region, acute Q fever should be considered in any febrile patient with hepatitis or atypical pneumonia who may have had contact with infected animals. More epidemiological studies, especially in immunocompromised patients and pregnant women, are needed.

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